IN THE US PATENT OFFICE

EXAMINER

GROUP

SN

FILED - concurrently herewith

BY - Ogino

PRELIMINARY AMENDMENT

SIRS:

Kindly amend the above as follows;

Claims 1-36, cancel without prejudice

Add claims 37-60 appearing in the appendix attached hereto.

REMARKS

Claims 37-60 are in the application. Claims 1-36 have been cancelled to expedite prosecution. Claims 37-60 have been drafted to bring the claims more in line with US practice. Entry hereof is respectfully solicited.

The fee calculation sheet shows the fee due after the above amendments.

respectfully

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WHAT IS CLAIMED IS:

37. An image processing method comprising the steps of:

determining a variance of pixel values in a local region
to which a pixel of interest belongs, wherein each pixel con-
stituting an image is defined as said pixel of interest; and

maintaining or enhancing pixel value of said pixel of int-
erest when said determined variance is significantly larger than
a variance of noise, otherwise suppressing or maintaining said
pixel value of said pixel of interest.

38. The method of claim 37, wherein each pixel constitutes
multi-slice images, and the step of maintaining or enhancing pixel
value provides adjustment of pixel values; and further comprising
the step of:

performing maximum intensity projection on said multi-slice
images subjected to said pixel value adjustment.

39. The method of claim 38, further comprising the step of:

adding to said determined variance a variance of pixel values
in a local region to which a corresponding pixel of interest in
an image of a neighboring slice belongs.

40. The method of claim 37, wherein said suppressing of said
pixel value is performed by multiplying by a coefficient of less
than one.

41. The method of claim 37, wherein said suppressing of said
pixel value is performed by subtracting a predefined numeric value.

42. The method of claim 37, wherein said enhancing of said
pixel value is performed by multiplying by a coefficient which
is equal to or greater than one.

43.   The method of claim 37, wherein said enhancing of said pixel value is performed by adding a predetermined numeric value.

44.   The method of claim 37, further comprising the steps of:

determining a residual sum of squares of pixel values for each of a plurality of local regions defined over an entire image;

determining a histogram of said residual sum of squares; and

determining said variance of noise based on a residual sum of squares that gives a peak of said histogram.

45.   The method of claim 37, wherein said image is of a blood flow image.

46.   An image processing apparatus comprising:

first means for determining a variance of pixel values in a local region to which a pixel of interest belongs, wherein each pixel constituting an image is defined as said pixel of interest; and

second means for maintaining or enhancing pixel values of said pixel of interest when said determined variance is signif-icantly larger than a variance of noise, otherwise for suppressing or maintaining said pixel value of said pixel of interest.

47.   The apparatus of claim 46, wherein each pixel constitu-tes multi-slice images, and wherein said second means comprises means for adjusting said pixel value; and further comprising:

third means for performing maximum intensity projection on said multi-slice images subjected to said pixel value adjustment.

48.   The apparatus of claim 47, further comprising:

fourth means for adding to said determined variance a var-

iance of pixel values in a local region to which a corresponding pixel of interest in an image of a neighboring slice belongs.

49. The apparatus of claim 46, wherein said second means comprises means for suppressing said pixel value by multiplying with a coefficient of less than one.

50. The apparatus of claim 46, wherein said second means comprises means for suppressing said pixel value by subtracting a predefined numeric value.

51. The apparatus of claim 46, wherein said second means comprises means for enhancing said pixel value by multiplying with a coefficient which is equal to or greater than one.

52. The apparatus of claim 46, wherein said second means comprises means for enhancing said pixel value by adding a predefined numeric value.

53. The apparatus of claim 46, further comprising:

third means for determining said variance of noise, wherein said third means comprises:

means for determining a residual sum of squares of pixel values for each of a plurality of local regions defined over an entire image;

means for determining a histogram of said residual sum of squares; and

means for determining said variance of noise based on a residual sum of squares that gives a peak of said histogram.

54. The apparatus of claim 46, wherein said image is of a blood flow image.

<center>APPENDIX "C"</center>

55. A recording medium for being recorded in a computer readable manner with a program for causing a computer to implement the functions of:

determining a variance of pixel values in a local region to which a pixel of interest belongs, wherein each pixel constituting an image is defined as said pixel of interest; and

maintaining or enhancing said pixel value of said pixel of interest when said determined variance is significantly larger than a variance of noise, otherwise for suppressing or maintaining said pixel value of said pixel of interest.

56. The recording medium of claim 55, wherein each pixel constitutes muli-slice images, and the step of maintaining or enhancing pixel value provides adjustment of pixel values; and further comprising the function of:

performing maximum intensity projection on said multi-slice images subjected to said pixel value adjustment.

57. The recording medium of claim 56, further comprising the function of:

adding to said determined variance a variance of pixel values in a local region to which a corresponding pixel of interest in an image of a neighboring slice belongs.

58. An imaging apparatus for producing an image based on signals collected from an object, said apparatus comprising:

means for determining a variance of pixel values in a local region to which a pixel of interest belongs, said pixel of interest being defined as being each pixel constituting an image; and

means for maintaining or enhancing said pixel value of said pixel of interest when said determined variance is significantly larger than a variance of noise, otherwise for suppressing or maintaining said pixel value of said pixel of interest.

59. The imaging apparatus of claim 58, wherein each pixel con-constitutes multi-slice images, and wherein said means for determing a variance of pixel values comprises means for adjusting said pixel values; and further comprising:

means for performing maximum intensity projection on said multi-slice images subjected to said pixel value adjustment.

60. The imaging apparatus of claim 59, further comprising:

means for adding to said determined variance a variance of pixel values in a local region to which a corresponding pixel of interest in an image of a neighboring slice belongs.